AMENDMENTS TO THE CLAIMS

1-13.   (cancelled)

14.   (currently amended) A method of designing a polyketide synthase (PKS) gene capable of producing a desired polyketide, which method comprises:

(a)   defining a string of alphanumeric symbols representing the structure of said polyketide,

(b)   comparing said string to a database of strings of alphanumeric symbols representing polyketides ~~produced~~ producible by PKS genes,

(c)   identifying common elements in said string representing the structure of said desired polyketide with elements in said strings in said database, and

(d)   generating and storing or displaying one or more new strings from elements identified in step (c) that have an exact match with said string representing the structure of said desired polyketide, wherein said new string defines a PKS gene capable of producing said desired polyketide.

15.   (previously presented) The method of claim 14, wherein all possible PKS genes capable of producing the desired polyketide from said database are generated and displayed.

16.   (original) The method of claim 14, wherein said new strings generated in step (d) are rated and displayed in an order based on one or more parameters.

17.   (currently amended) The method of claim 16, wherein said parameters are selected from the group consisting of a number of non-native module interfaces and a number of non-native protein interfaces.

18.   (currently amended) A computer-readable medium embodying a set of program instructions configured to enable a computing device to perform method steps for designing a PKS gene capable of producing a desired polyketide, the method steps comprising:

(a)   receiving a string of alphanumeric symbols representing the structure of said polyketide,

(b)   comparing said string to a database of strings of alphanumeric symbols representing polyketides ~~produced~~ producible by PKS genes,

(c)   identifying common elements in said string representing the structure of said desired polyketide with elements in said strings in said database, and

(d)   generating and storing or displaying one or more new strings from elements identified in step (c) that have an exact match with said string representing the structure of said desired polyketide, wherein said new string defines a PKS gene capable of producing said desired polyketide.

19.   (currently amended) A computer-implemented method for designing a PKS gene capable of producing a desired polyketide comprising

(a)   receiving a string of alphanumeric symbols representing the structure of said polyketide,

(b)   comparing said string to a database of strings of alphanumeric symbols representing polyketides ~~produced~~ producible by PKS genes,

(c)   identifying common elements in said string representing the structure of said desired polyketide with elements in said strings in said database, and

(d)   generating and storing or displaying one or more new strings from elements identified in step (c) that have an exact match with said string representing the structure of said desired polyketide, wherein said new string defines a PKS gene capable of producing said desired polyketide.

20.   (currently amended) A computer readable medium, comprising:

(a)   means for receiving a string of alphanumeric symbols representing the structure of said polyketide,

(b)   means for comparing said string to a database of strings of alphanumeric symbols representing polyketides ~~produced~~ producible by PKS genes,

(c)   means for identifying common elements in said string representing the structure of said polyketide with elements in said strings in said database, and

(d)   means for generating and storing or displaying one or more new strings from elements identified in step [[(b)]] (c) that have an exact match with said string representing the structure of said polyketide, wherein said new string defines a PKS gene capable of producing said polyketide.

21.   (new) The method of claim 14, wherein all possible PKS genes capable of producing the desired polyketide from said database are generated and stored.

22.   (new) The method of claim 14, wherein said new strings generated in step (d) are rated and stored in an order based on one or more parameters.